To a solution of 8.93 g of crude 6-O-methylerythromycin A 9-(O-allyloxime), obtained above, in a mixture of 50 ml of dioxane and 7.5 ml of water were added 89 mg of palladium acetate, 539 mg of triphenyl phosphine and 9.7 g of triethylammonium formate, and the mixture was refluxed for 30 minutes. After completion of the reaction, the solvent was evaporated under reduced pressure, 200 ml of diethyl ether was added, and the mixture was extracted with 10% acetic acid. The acetic acid layer was washed with, in turn, diethyl ether and n-hexane, made basic with 5N-sodium hydroxide and extracted with ethyl acetate. The organic layer was washed with a saturated aqueous sodium chloride solution and dried over anhydrous magnesium sulfate, and the solvent was evaporated to give 8.5 g of crude 6-O-methylerythromycin A 9-oxime.

To a solution of 8.5 g of 6-O-methylerythromycin A 9-oxime, obtained above, in a mixture of 40 ml of ethanol and 40 ml of water were added 4.65 g of sodium hydrogen sulfite and 1 ml of 99% formic acid, and the mixture was refluxed for 100 minutes. To the reaction solution was added 130 ml of water, and the mixture was adjusted to pH about 9.5 with an aqueous sodium hydroxide solution and stirred under ice-cooling for an hour. The resulting precipitate was collected by filtration, washed throughly with water, and recrystallized from ethanol to give 4.19 g of 6-O-methylerhtyromycin A.

m.p. 223–225° C.

Referential Example 2

Preparation of 6-O-methylerythromycin A from 2', 4"-O-bis(trimethylsilyl)-6-O-methylerythromycin A 9-[O-(o-chlorobenzyl)oxime]

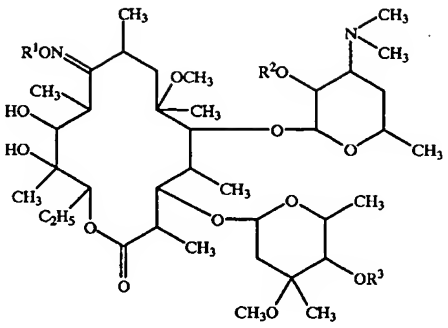
To a solution of 2.8 g of crude 2,4"-O-bis(trimethylsilyl)-6-O-methylerythromycin A 9-[O-(o-chlorobenzyl)oxime], obtained in Example 12, in 30 ml of methanol were added 450 mg of 10% palladium carbon, 1.8 ml of formic acid and 300 mg of ammonium formate, and the mixture was stirred at 60° C. for 2 hours. The palladium catalyst was filtered off, and the filtrate, after addition of 200 ml of water, was made basic with 2N aqueous sodium hydroxide solution. The precipitate which formed was collected by filtration, washed with water and dried to give 1.7 g of crude 6-O-erythromycin A 9-oxime.

By reacting 6-O-erythromycin A 9-oxime thus obtained with sodium hydrogen sulfite and 99% formic acid according to the procedure similar to that of Referential EXAMPLE 1, there was obtained 1.17 g of 6-O-methylerythromycin A as crystals.

m.p. 223–225° C.

What is claimed is:

1. A process for preparing a 6-O-methylerythromycin A derivative represented by the formula:



I

wherein R^1 is:

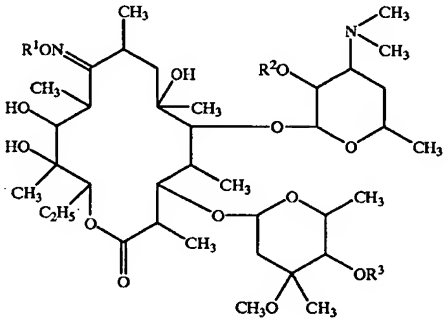
a 2-alkenyl group having 3 to 15 carbon atoms,

a benzyl group, or

a benzyl group substitued by 1 to 3 of a chlorine atom, an alkoxy group having 1 to 4 carbon atoms, a nitro group or an alkoxycarbonyl group having 2 to 6 carbon atoms, and

R^2 and R^3 are trimethylsilyl,

which comprises reacting, in any desired sequence, erythromycin A 9-oxime with a compound of formula R^1—X (wherein R^1 is as defined above, and X is a halogen atom) and with a substituted silylating agent having R^2 group to give a compound represented by the formula;



II

(wherein R^1, R^2 and R^3 are as defined above), and then reacting said compound of formula II with a methylating agent selected from the group consisting of methyl bromide, methyl iodide, dimethyl sulfate, methyl p-toluene sulfonate and methyl methane sulfonate, the amount said methylating agent being 1–3 molar equivalents of said compound of formula II, said trimethylsilyl group (R^2) protecting the 2' hydroxyl group against methylation and the 3'-dimethylamino group from being quaternized with the methylating agent.

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